

## REMARKS

Claims 1-25 are pending in the subject application. Claims 10-21, 23, and 25 are allowed, claims 6, 22, and 24 are allowable if rewritten in independent form, and claims 1-5, and 7-9 are presently under rejection.

Claim 1 has been amended to better define the claimed invention. Support for the amendment is found in the specification on page 3, line 23, page 4, and lines 2-10.

### Formal Matters

Applicants affirm that the subject matter of the various claims was commonly owned at the time any inventions covered thereby were made.

### The Invention

The rejected claims are directed to a method of preparing a polymeric aryl sulfonamide comprising reacting a monocyclic aryl sulfonyl with an aliphatic polymeric amine, in the presence of an acid acceptor. The polymeric aryl sulfonamide prepared according to this invention is a pigment dispersing agent.

### Rejections under 35 U.S.C. §102(b)

#### *Rejection over Weaver, et al.:*

Claims 1, 3-5, 7, and 9 have been rejected under §102(b) over Weaver, et al. (WO 98/10022). It is alleged in the rejection that Weaver teaches the preparation of dihalosulfonyl compounds containing aryl groups and a diamine in the presence of an acid acceptor. Weaver is directed to polysulfonamide colorants which contain anthraquinone chromophores (see page 3, lines 7-9). These colorants are obtained by reacting a dihalosulfonyl intermediate containing the anthraquinone chromophore (see page 3, line 22 and page 4, lines 26-27), with a diamine. Anthraquinone is a three-ringed polycycle, therefore Weaver's intermediates are not monocyclic, because they **must** contain at least one anthraquinone, i.e. they must contain a polycyclic **aromatic ring** (and may in addition contain one or two naphthalenes -- see page 4, lines 6-7). Weaver does not disclose monocyclic aryl sulfonyl intermediates. In contrast, the monocyclic

intermediate in the claimed method is structurally and functionally distinct from Weaver's because it does not contain any polycyclic aromatic rings. Therefore, the claimed method is not disclosed by Weaver.

Weaver does not disclose or suggest a polymeric aryl sulfonamide pigment dispersing agent, therefore it does not disclose the claimed method for making such an agent. The compounds of Weaver are colorants, and accordingly contain anthraquinone chromophores. The claimed method does not produce colorants with anthraquinone chromophores, it provides pigment dispersing agents.

Accordingly, as Weaver does not disclose all the features of Applicants' polymeric aryl sulfonamide pigment dispersing agent, Applicants ask that the rejection be withdrawn.

*Rejection over Randall:*

Claims 1, 3-5, 7, and 9 have been rejected under §102(b) over Randall (U.S. Patent No. 3,403,200). It is alleged in the rejection that Randall teaches the preparation of polysulfonamide colorants where a polymeric amine is reacted with a disulfonyl chloride. Randall discloses a process for making polyamide or polysulfonamide dyes containing chromophoric units of four diazotized aromatic rings (*see* for example formula bridging column 3 and column 4).

The diamine intermediate for Randall's dyes is a four-ringed diamine (*see* column 2, lines 14-20) made by coupling **aromatic** diamines with a diazo coupling agent (*see* column 2 lines 35-42). This intermediate is coupled with a diacid chloride to provide the dye. Since the only diamines disclosed by Randall are **aromatic**, Randall does not anticipate the claimed method where aliphatic diamines are used. The Randall polysulfonamide products are expressly intended to contain multiple aromatic ring structures, and these structures are obtained by use of aromatic diamine intermediates. If an aliphatic diamine were used, as in the claimed method, the product desired by Randall would not be obtained.

Furthermore, like Weaver, Randall does **not** disclose a polymeric aryl sulfonamide pigment dispersing agent, therefore does not disclose or suggest the claimed method for making such an agent. The Randall compounds are **dyes** containing the

above chromophoric ring structure. The claimed method does not produce dyes with such a chromophoric ring structure, it provides pigment dispersing agents.

Accordingly, as Randall fails to disclose all the features of Applicants' polymeric aryl sulfonamide pigment dispersing agent, it is respectfully requested that this rejection be withdrawn.

#### Rejection under 35 U.S.C. §103(a)

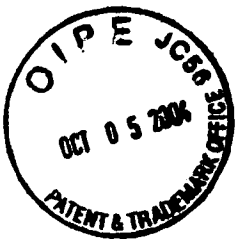
Claim 8 has been rejected under §103 over Weaver, et al. Claim 8 provides a method of preparing a polymeric aryl sulfonamide pigment dispersing agent by reacting a monocyclic aryl sulfonyl with an aliphatic polymeric amine in the presence of sodium carbonate as an acid acceptor.

It is alleged that since Weaver teaches alkali metal carbonates as acid acceptors, it would have been obvious to use sodium carbonate as an acid acceptor. This rejection is respectfully traversed on the grounds that Weaver does not suggest the claimed invention.

As previously stated, Weaver does not disclose the invention. Weaver is directed to a method for making polysulfonamide colorants which contain **polycyclic anthraquinone chromophores** and does not suggest a method for making a monocyclic polysulfonamide dispersing agent. Further, Weaver does **not disclose monocyclic aryl sulfonyl intermediates** nor does Weaver suggest employing any such intermediate, since the thrust of Weaver is to make a polysulfonamide colorant which must contain a polycyclic anthraquinone structure. Accordingly, Weaver actually teaches against using a monocyclic intermediate, since what is desired in the final compound is a polycyclic chromophore.

Applicants' invention is a method to produce a polymeric aryl sulfonamide pigment dispersing agent and is not intended to produce an anthraquinone colorant. In contrast, Weaver requires an anthraquinone chromophore moiety in order to produce the desired colorant.

Therefore, since the claimed method is not taught or even suggested by Weaver, never mind the specific use of sodium carbonate as an acid acceptor in Claim 8, the invention is not obvious in view of Weaver. The Examiner is respectfully requested to withdraw this rejection.



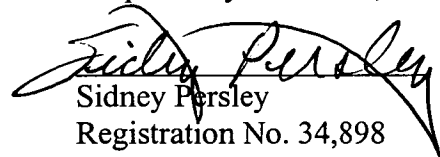
Allowed Subject Matter

Allowance of claims 10-21, 23, and 25 is gratefully acknowledged. The Examiner has indicated that claims 6, 22, and 24 would also be allowable if made independent. Applicants respectfully request that the Examiner reconsider the allowability of claims 6, 22, and 24 in light of their dependence on claim 1 as presently amended.

CONCLUSION

Applicants believe that the amendments and the remarks provided herein adequately and completely address the Examiner's rejections. It is therefore respectfully submitted that the amended claims are in condition for allowance.

Respectfully submitted,

  
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